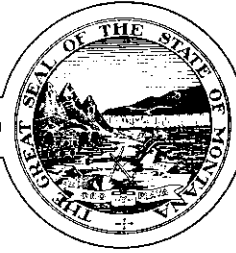


# TEACHERS' RETIREMENT SYSTEM



BRIAN SCHWEITZER, GOVERNOR

[www.tris.mt.gov](http://www.tris.mt.gov)

STATE OF MONTANA

1500 EAST SIXTH AVENUE  
PO BOX 200139  
HELENA, MONTANA 59620-0139

1-866-600-4045  
406-444-3134

**To:** Terry Moore, Chairman  
Montana Board of Investments

**From:** David Senn, Executive Director  
Teachers' Retirement System

Roxanne Minnehan, Executive Director  
MPERA

**Re:** Carroll South's Report to the BOI on  
Pension Liabilities and Normal Cost

**Date:** October 15, 2009

The August 11, 2009, memorandum by Carroll South, Executive Director, to the Board of Investments contains several statements regarding the calculation of normal cost, unfunded liabilities, and negative cash flows that are not in keeping with the actuarial principals employed by the retirement systems and may be misleading. While the report accurately identifies a funding shortfall in the retirement systems that will need to be addressed by the legislature, we feel it is important to clarify the actuarial processes and principles underlying the reports asserted conclusions.

The purpose of this memo is not to try to fully explain the technical calculations behind the concepts or even to address every issue, but to offer some clarification of specific actuarial principles cited in the conclusions contained in the report to ensure that all persons relying on the report as a basis for evaluating the state's retirement systems will understand where the methodology utilized in generating the report diverges from the application of accepted actuarial principles. In addition, the Actuaries for the Teachers' Retirement System and the Montana Public Employees' Retirement Administration will be at the SAVA committee meeting October 29 and 30, 2009, and we would encourage all members of the Board of Investments to attend this meeting to learn more about the calculations and processes that result in the annual actuarial valuations.

## **Negative Cash Flow and Actuarial Assumptions:**

The report on page 3 states, "*Negative cash flow will continue to grow as the Systems mature and the ratio of retirees to contributing employees increases.... Once systematic negative cash flow begins, the only revenue available to "grow" the assets is income generated by the assets.*"

October 15, 2009

Page 2

While the assertion that the retirement systems are mature and in a state of negative cash flow is not incorrect, but that fact is not, in and of itself, necessarily either bad or unexpected. The relevant inquiry is what factor(s) have given rise to the period of negative cash flows. Negative cash flow generated by a mature system is usually offset by the real return (investment return) on assets. While we do not take exception with the BOI's determination that the retirement systems are in a state of accelerated negative cash flows, we take exception with the projection calculated using the stated assumptions. The problem is that the report utilizes an "assumption" that benefit/administrative cost growth will be 6.87% annually, which assumption is not an actuarial assumption utilized by the retirement system. Rather, long term, the benefits and administrative expenses, as well as contributions on payroll and the value of assets, would be expected to grow at the overall rate of inflation, which has been lower than the report's assumed rate of 6.87%. (Because both assets and liabilities are assumed to grow at the rate of inflation, actuarial theory would suggest that the asset pool will never shrink in nominal dollar terms.) The higher 6.87% annual rate of liability growth used in the report results in an overstatement of the expected growth in liabilities and, consequently, results in an overstatement of the expected future funding shortfall.

The primary problem faced by the state's retirement systems is not the valuation assumptions or methodology employed by the systems, but rather that the actuarially required contribution rate is expected to exceed the statutory contribution rates by a substantial margin over the next several years as the investment losses of FY 2009 are phased into the actuarial value of assets. This gap will increase the unfunded actuarial liabilities and accelerate the point of negative cash flow.

The actuarial assumptions adopted by the Board are checked against experience every 4 – 6 years to confirm the assumptions actually follow experience. The Legislative Auditor also had the assumptions as well as the actuarial calculation of liabilities verified in an audit completed by Mellon in 2004. The audit found the actuarial calculations as well as the actuarial assumptions to all be correct. The next experience study will be completed in the spring of 2010. Ultimately, the BOI's independent determination of an assumption for the growth of benefits and expenses for the retirement system is not in keeping with the actuarial methodology employed by the retirement system, is of nominal if any value in evaluating or understanding the actuarial valuation of the retirement system, and obfuscates the real issue here, which is how to adequately fund the retirement systems in the face of 20%+ investment losses in FY 2009.

#### **Determination of Rate of Return**

On page 4 of the report, a comment is made that the BOI developed the asset allocation to meet the actuarial assumed investment return assumption. In fact, the determination of the actuarially assumed investment return should be, and is, established by the retirement system board based on the BOI's asset allocation. The BOI should set a prudent asset allocation based on cash flow needs and a reasonable level of risk they are willing to take. The retirement system's actuary then uses that asset mix and the Capital Asset Pricing Model (CAPM) assumptions used by the BOI to set that mix in determining the investment return assumption. The retirement boards cannot adopt investment return assumptions until they know what asset allocation the BOI has adopted. For example, when the BOI's approved asset allocation was 60%-70% fixed income, the actuarial investment assumption was much lower. As the BOI adopted a more aggressive asset allocation, the return assumption was increased to recognize the actions of the BOI and reasonably anticipated increases in investment returns based on the new asset allocation.

### **What is an unfunded Liability?**

An unfunded liability is simply the difference between the actuarial valuation of assets and the actuarial value of liabilities of the system. If the liabilities are greater than the assets, the system has an unfunded liability. If the liabilities are smaller than the assets, the system has a surplus. Unfunded liabilities arise either because benefit increases were granted and not funded, required contributions were not made, or experience did not exactly match the actuarial assumptions.

On page 5 the report states that *"it appears that liabilities have been historically understated based on the relationship of unfunded liabilities to the investment return on assets."* If the statement is meant to convey that the return on investments has not exactly matched the actuarial assumption and assets will be less than expected, this is a true statement. The growth in the actuarial value of liabilities is impacted by member longevity, retirement rates, as well as salary increases, withdrawal rates, disability rates, and future legislation, not the investment return. However, the investment rate of return on assets for just one year can have a significant impact on the growth in unfunded liabilities.

The losses experienced by PERS since 1994 are not the result of understated liabilities, as stated on page 5, but primarily the result of market losses for PERS of \$149 million in FY2001, and \$993 million in FY 2008 & FY 2009. In fact, the funded ratio of the PERS increased from 84.08% in 1994 to 90.25% in 2008, before decreasing to 83.50% as of 2009.

### **What are Normal Cost Calculations?**

The normal cost is the theoretical contribution rate, which will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees were covered under a separate fund from which all benefits and to which all contributions and associated investment returns were to be paid. Under the entry age actuarial cost method, the normal cost contribution rate is that level percentage of pay which would be exactly right to maintain this fund on a stable basis. The normal cost calculations are based upon all of the assumptions used to develop them and if these assumptions are exactly met in the future, the normal cost would exactly fund the benefits in the aggregate, but not necessarily for each individual.

If normal cost is tested assuming experience matches those assumptions, the assets will be sufficient to pay all benefits due. The shortfalls projected in the BOI report for PERS (e.g., page 7) are likely based on a difference between the salary growth assumption used in the valuation and the 4.25% used in the projections. In addition, it must be noted that the normal cost rate in the valuation is an average of all the individual member normal cost rates, not the rate for a single member.

The normal cost rate used in the report (11.02%) is an average rate for PERS that would probably fit someone age 40–45 with 5-9 years of service. Using this rate the report concludes: *"A normal cost rate of 11.02 percent as estimated by the PERS actuary for members hired after July 1, 2008 would provide sufficient assets at retirement to fund 17 years of benefit payments"*. However, using this analysis, someone age 40 – 45 with a 30 year career would not retire until age 70 – 75. At that point, if there is only enough funding to fund benefits for 17 years, the system is more than likely properly funded.

October 15, 2009

Page 4

The analysis in the report also ignores any gains or losses from retirement, early retirement, terminations, disabilities, or deaths, which must be included in the calculation of normal cost.

Pension systems rely on actuaries to provide fiscally sound long-term analyses of their funding status. Actuaries look at demographics, mortality rates, the ratio of workers to retirees, benefit levels, and investment-return projections to determine the level of contributions needed to maintain a healthy funding status. While the examples in the August 11, 2009, report may over simplify very complex actuarial calculations, it is highly unlikely the actuaries for the systems have miscalculated the normal cost or understated the liabilities. The Legislative Auditor has contracted with qualified actuaries who have the education, training, and experience to verify the calculations. If mistakes had been made to the magnitude alleged in the report, they would have been discovered long before now.

Having said all that, the basic conclusion that we are in a difficult spot right now and it will take a combination of prudent investment risk-management, contribution rate increases and reductions in liabilities to help get the systems back on track is certainly correct.

Thank you for the opportunity to respond to the August 11, 2009 report, and we respectfully request that any further distribution of the report also include a copy of this memo as a way to offer clarification to what is a very difficult subject.